02/28/00

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BOX NEW PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Attorney Docket No.: <u>LUCENT-00401</u>

NEW APPLICATION TRANSMITTAL

Sir:

Transmitted herewith for filing is the patent application of Inventor: Connie Blackburn et al

AUDIBLE CONFIRMATION USING TEXT TO SPEECH CONVERSION

CERTIFICATION UNDER 37 CFR § 1.10

I hereby certify that this New Application and the documents referred to as enclosed herein are being deposited with the United States Postal Service on this date, <u>February 25, 2000</u>, in an envelope bearing "Express Mail Post Office To Addressee" Mailing Label Number <u>EL524968384US</u> addressed to: **PATENT APPLICATION**, Assistant Commissioner for Patents, Washington, D.C. 20231.

Carleen Obrien	
(Name of Person Mailing Paper)	Signature

Enclosed are:

1.   The papers required for filing date under CFR § 1 53(b):

    <u>12</u>   Pages of Specification (including claims);   <u>3</u>   Sheet(s) of Drawings.
                                                                                       Formal
                                                                                    <u>X</u>   Informal

2.   <u>X</u>   Declaration or Oath (combined with Power of Attorney) unexecuted
3.   <u>X</u>   Power of Attorney (combined with Declaration) unexecuted
4.   _   Assignment of the Invention to <u>LUCENT TECHNOLOGIES INC.</u> (including Form PTO-1595).

5.   Fee Calculation

    _   Amendment changing number of claims or deleting multiple dependencies is enclosed.

CLAIMS AS FILED

	Number Filed	Number Extra	Rate	Basic Fee
				$690.00
Total Claims	14 - 20 =	0	$18.00	0.00
Independent Claims	3 - 3 =	0	$78.00	0.00
Multiple Dependent claim(s), if any			$260.00	
			Filing Fee Calculation	$690.00

6.   Other Fees

    _   Assignment Recordation Fee

    _   Other   0.00

TOTAL FEES ENCLOSED   **$0.00**

7.   <u>X</u>   Please file the application and charge **Lucent Technologies Deposit Account No. 12-2325** the amount of $690.00 to cover the filing fee. Duplicate copies of this letter are enclosed. In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or credit **Deposit Account No. 12-2325** as required to correct the error.

8.   <u>X</u>   Return Receipt Postcard

9.   <u>X</u>   Please address all correspondence to

        Thomas B. Haverstock
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Dated: <u>February 25, 2000</u>

By:
Name: <u>Thomas B. Haverstock</u>
Registration No.: <u>32,571</u>

Audible Confirmation Using Text
to Speech Conversion

Related Applications

5   This application claims priority under 35 U.S.C. § 119(e) of the co-pending U.S. provisional application Serial Number 60/121,721 filed on February 26, 1999 and entitled "Audible Confirmation Using Text to Speech Conversion." The provisional application Serial Number 60/121,721 filed on February 26, 1999 and entitled "Audible Confirmation Using Text to Speech Conversion" is also hereby incorporated by reference.

10

Field of the Invention

        This invention relates to the field of telecommunications communications systems. More particularly, this invention relates to the field of voice telecommunications systems employing text to speech converters.

15

Background of the Invention

        Currently, selected local telephone service providers offer a caller identification service that identifies a telephone number of a calling party to a recipient party of the call. For the recipient party to receive the telephone number of the calling party, the recipient party

20   typically needs to utilize a special display device to visually read the telephone number offered by the caller identification service.

        Presently, there are also display telephones that have a screen which displays a telephone number being dialed by the calling party. In theory, the calling party is able to visually confirm the telephone number that was dialed by the calling party and to then match

25   up the displayed telephone number which was dialed by the calling party with the telephone number of the recipient party.

However, looking at a display screen is often inconvenient and sometimes not possible due to screen limitations, lighting environment of the screen, and/or user eyesight limitations which may ultimately render the screen unreadable to the user. Further, merely displaying a telephone number of the call recipient does not often provide enough information. For

5   example, a telephone number by itself does not necessarily reveal the identity of the called party. Furthermore, the information shown on the display screen is actually stored within a corresponding telephone which may not allow the call recipient to accurately identify the calling party.

What is needed is an audible confirmation system that provides a user with an audible

10   confirmation identifying a call recipient. What is also needed is an audible confirmation system that provides a user with an audible name identifying a call recipient. What is further needed is an audible confirmation system that operates within an existing Intelligent Network architecture and is available to a user utilizing only a conventional telephone.

Summary of the Invention

15   The present invention is an audible confirmation system that automatically and seamlessly outputs an audible name of a call recipient to a calling party. This audible confirmation system is preferably configured to audibly identify the call recipient to the calling party prior to the call recipient and the calling party communicating with each other.

20   The audible confirmation system preferably includes a text to speech converter for interfacing to a calling name database. The calling name database is made to be part of the intelligent network architecture.

In use, the audible confirmation system preferably locates an appropriate portion of the calling name database and retrieves a text name of the call recipient from the calling name

25   database. The location of the appropriate portion of the calling name database is preferably based upon a unique identifier of the call recipient such as a telephone number. Next, the audible confirmation system preferably directs a text to speech converter to transform the text

name of the call recipient into a corresponding audible identifier, eg., their spoken name. After the text to speech converter forms the corresponding audible identifier, the audible identifier is then transmitted to the calling party.

The audible confirmation system allows the calling party to audibly identify the call recipient to the calling party without any input from the call recipient and without using any special equipment such as a display screen by the calling party. The audible confirmation system is especially useful when the call recipient does not have a voice mail service and is not available to receive a call. For example, by utilizing the audible confirmation system, the calling party is able to confirm the identity of the call recipient prior to leaving a confidential message for the call recipient by utilizing the calling party's voice mail delivery system for automatically delivering the confidential message to the call recipient.

The present invention provides an audible confirmation system and method which operates within an existing Intelligent Network architecture and utilizes existing databases. Additionally, the present invention provides an audible confirmation system and method which automatically and seamlessly provides a calling party with an audible identification of a call recipient prior to communication between the calling party and the call recipient. Finally, the present invention provides an audible confirmation system and method that does not require the calling party to have special equipment.

Brief Description of the Drawings

Figure 1 illustrates a block diagram showing an audible confirmation system configured for implementing a preferred embodiment of the present invention.

Figure 2 illustrates a state diagram showing a sample operation of the present invention.

Figure 3 shows a block diagram of a system for implementing the present invention.

Detailed Description of the Preferred Embodiment of the Present Invention

The present invention is a text to speech conversion system and method which allows a calling party to hear an audible name of a call recipient prior to connecting the calling party to the recipient. This way, the calling party is able to audible identify the call recipient prior

5 to speaking to the call recipient or leaving a voice mail message for the call recipient. Figure 1 illustrates a block diagram showing an Intelligent Network architecture 100 configured for implementing a preferred embodiment of the present invention. The Intelligent Network architecture 100 is shown for exemplary purposes only. It will be apparent to those skilled in the art to modify, substitute, add or delete elements to the Intelligent Network architecture

10 100 without departing from the scope of the present invention.

The Intelligent Network architecture 100 of Figure 1 includes a signal control point (SCP) 110, a signalling system No. 7 (SS7) network 120, a calling name database (CNAM) 130, a text to speech converter 140, switches 150 and 160, and a caller 170. Further, the architecture 100 also includes data links 180, 181, 182, and 183, and control links 190, 191,

15 192, 193, and 194.

The SCP 140 preferably provides control signals to and from the CNAM 130, the switches 150 and 160, and the text to speech converter 140, via the SS7 network 120. The SCP 110 is coupled to the SS7 network 120 via the control link 190. The CNAM 130 is coupled to the SS7 network 120 and the switch 150 via the control link 191 and the data link

20 180, respectively. The text to speech converter 140 is coupled to the SS7 network 120 and the switch 150 via the control link 192 and the data link 181, respectively. The switch 160 is coupled to the SS7 network 120 and the switch 150 via the control link 194 and the data link 182, respectively. The switch 150 is coupled to the SS7 network 120 via the control link 193. The caller 170 is coupled to the switch 160 via the data link 183. It would be apparent

25 to those skilled in the art to utilize additional or fewer control links.

The CNAM 130 preferably stores a database of written telephone numbers and text names corresponding with each of the written telephone numbers. The text to speech

converter 140 is configured to translate text messages into corresponding audible messages. In the present invention, the text to speech converter 140 is preferably configured to translate a text name within the CNAM 130 into a corresponding audible name.

The Intelligent Network 100 is shown for exemplary purposes only. It will be apparent to those skilled in the art to add or delete CNAMs, text to speech converters, switches, and signal control points.

Figure 2 illustrates a timing diagram for describing the operation of the preferred embodiment of the present invention. For the sake of simplicity and clarity, common elements shown in both Figures 1 and 2 also share common reference numerals. For example, the SCP 110, the CNAM 130, the text to speech converter 140, and the switch 160 are common in both Figures 1 and 2. To prevent obscuring the preferred embodiment of the present invention, selected details are omitted in Figure 2 such as control links and data links between the SCP 110, the CNAM 130, the text to speech converter 140, and the switch 160 which are specifically shown in Figure 1 and described above.

In this timing diagram, the CNAM 130 and the text to speech converter 140 in conjunction with the SCP 110 and the switch 160 are described in context with the overall functionality of the Intelligent Network 100. As shown in Figure 2, this timing diagram illustrates interaction between the SCP 110, the CNAM 130, the text to speech converter 140, and the switch 160. According to the preferred embodiment the switch 160 supplies a data link to the calling party 170 (Figure 1) for voice transmission, and the switch 150 (Figure 1) provides data links between the CNAM 130, the switch 160, and the text to speech converter 140. However, it will be apparent to those skilled in the art that a variety of switches may be utilized to provide data links between the calling party 170 (Figure 1), the CNAM 130, and the text to speech converter 140.

First, this timing diagram begins with an initiation sequence at step 200 wherein the SCP 110 preferably queries the switch 160 for commands which indicate that the calling party 170 (Figure 1) is attempting an outgoing call. At step 205, the switch 160 preferably

monitors the calling party 170 (Figure 1) for attempts to initiate an outgoing call. Upon the calling party 170 (Figure 1) initiating an outgoing call, the switch 160 preferably notifies the SCP 110 and transmits to the SCP 110 a unique identifier corresponding to the destination of the outgoing call. This unique identifier is preferably a telephone number.

5   Next, the SCP 110 preferably locates an appropriate CNAM which stores this particular unique identifier via the SS7 network 120 (Figure 1). In this particular example, the CNAM 130 is the appropriate CNAM. As shown in the step 210, the SCP 110 queries the CNAM 130 for a text name associated with the particular unique identifier. In response to finding this text name, the CNAM 130 notifies the SCP 110 in the step 220.

10   Once the SCP 110 receives notification from the CNAM 130 that the corresponding text name is found, in the step 230, the SCP 110 preferably instructs the text to speech converter 140 to notify the SCP 110 when the corresponding text name is complete. Next, the CNAM 140 sends this corresponding text name to the text to speech converter 140 in the step 235. Preferably, the text to speech converter 140 transforms the text name into a

15   corresponding audible name. After the corresponding audible name is formed, the text to speech converter 140 preferably informs the SCP 110 in the step 240. Next in the step 250, the SCP 110 preferably instructs the switch 160 to deliver the corresponding audible name to the calling party 170 (Figure 1). Finally, the text to speech converter 140 transmits the corresponding audible name to the switch 160 in the step 255.

20   In use, the preferred embodiment of the present invention as described above and illustrated in Figures 1 and 2 has many practical applications. One such application is to ensure that a calling party correctly delivers a voice message to an intended call recipient when the call recipient does not have a voice mail service, and a voice mail delivery system is provided by a calling party. This application is described below for exemplary purposes only

25   and is not intended to limit the scope of the preferred embodiment.

For example, suppose a calling party initiates a call to a call recipient. However, the call recipient is not available to answer this call. Assume that the call recipient does not have

a voice mail service. Instead of continuing to call back until the recipient's telephone is answered, the calling party is able to leave the recipient a message by utilizing a remote message delivery service associated with either the caller or the recipient. This message delivery service records the calling party's message and automatically re-dials the call

5   recipient until the call recipient's telephone is answered. By utilizing the preferred embodiment of the present invention, the calling party receives audible confirmation of the call recipient's name prior to leaving a message on the message delivery service. In this way, the caller can avoid leaving a message for a person at a wrong number. Preferably the present invention does not require input from the calling party. In use, the calling party

10   simply places a call to the call recipient, and the present invention provides audible confirmation of the call recipient's identity by providing the calling party with the call recipient's audible name. By utilizing the present invention, the calling party is able to positively identify the call recipient such that the call recipient is correct prior to leaving a message to the call recipient.

15   Figure 3 shows a block diagram of a system for implementing the present invention. The caller 370 dials a telephone number using the speech path 383. The switch 360 notifies the SCP 310 that the caller 370 is attempting to place a call. The notification is made through the control line 394 and 390. The SCP 310 instructs the switch to connect the call temporarily to a Text-To-Speech converter 340. The switch connects the caller to the Text-

20   To-Speech converter 340 through the speech path 381 which in turn is coupled to the switch 360. Concurrently, the dialed number is provided to the Text-To-Speech converter 340 through the control path 394 and 392. The Text-To-Speech converter 340 queries the CNAM database 330 through the control link 392 and 391 to receive the text name associated with the dialed number. Upon receiving the text name, the Text-To-Speech converter 340 converts

25   the text name to an analog signal. The Text-To-Speech converter 340 then plays the analog signal to the caller through the speech path 381 and 383; i.e., it says the name to the caller. After it says the name, the Text-To-Speech converter 340 signals to the SCP 310 that it has

completed its task via the control links 392 and 390. The SCP 310 then instructs the switch 360 to continue processing the call and to forward it to its final destination, i.e., the called party connected to the switch 350.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of the principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be apparent to those skilled in the art that modifications may be made in the embodiments chosen for illustration without departing from the spirit and scope of the invention.

Specifically, it will be apparent to one of ordinary skill in the art that the device of the present invention could be implemented in several different ways and is only illustrative of the preferred embodiment of the invention and is in no way a limitation.

-8-

CLAIMS

1   1.   An audible confirmation system in an Intelligent Network for allowing a calling party

2   to audibly hear an audible name of a call recipient, the audible confirmation system

3   comprising:

4   a.   a database configured for storing a plurality of text names wherein each of the

5   plurality of text names is associated with a unique identifier;

6   b.   a control point coupled to the database and configured to retrieve one of the

7   plurality of text names in response to a call recipient selected by the calling

8   party; and

9   c.   a text to speech converter coupled to the control point and configured to

10   convert the selected one of the plurality of text names into the audible name.

1   2.   The audible confirmation system according to claim 1 wherein the unique identifier is

2   a telephone number.

1   3.   The audible confirmation system according to claim 1 wherein the database is a calling

2   name database.

1   4.   A method of allowing a calling party to audibly identify a call recipient, the method

2   comprising the following steps:

3   a.   initiating a call from the calling party directed to an identifier belonging to the

4   call recipient;

5   b.   matching the identifier to a text name corresponding to the recipient within a

6   database;

7   c.   retrieving the text name of the recipient from the database;

8   d.   converting the text name of the call recipient to an audible name; and

9   e.   audibly playing the audible name of the call recipient to the calling party prior

10   to connecting the call.

1   5.   The method according to claim 4 wherein the identifier is a telephone number

2   belonging to the call recipient.

1   6.   The method according to claim 4 wherein the database is a name calling database.

1   7.   The method according to claim 4 further comprising automatically re-dialing the call

2   recipient if the call cannot be connected.

1   8.   The method according to claim 7 further comprising leaving the call recipient a pre-

2   recorded message from the calling party.

1   9.   A method of allowing a calling party to audibly identify a call recipient, wherein the

2   method comprising the following steps:

3   a.   pre-recording a voice message by the calling party directed toward an identifier

4   belonging to the call recipient;

5   b.   matching the identifier to a text name corresponding to the call recipient

6   wherein the identifier and the text name are stored within a database;

7   c.   converting the text name of the call recipient to an audible name; and

8   d.   audibly playing the audible name of the recipient to the calling party.

1   10.   The method according to claim 9 further comprising audibly delivering the voice

2   message to the call recipient subsequent to audibly playing the audible name to the calling

3   party.

1   11.   The method according to claim 9 wherein the database is a name calling database.

1   12.   The method according to claim 9 wherein the database contains a plurality of

2   identifiers and a corresponding plurality of text names.

1   13.   The method according to claim 9 wherein the identifier is a telephone number

2   belonging to the call recipient.

1   14.   The method according to claim 9 further comprising locating the database which

2   contains the identifier and the text name belonging to the recipient among a plurality of

3   databases.

ABSTRACT

An audible confirmation system automatically and seamlessly outputs an audible name of a call recipient to a calling party. This audible confirmation system is preferably configured to audibly identify the call recipient to the calling party prior to the call recipient and the calling party communicating with each other. The audible confirmation system preferably includes a text to speech converter coupled to an intelligent network architecture having at least one calling name database. The audible confirmation system allows the calling party to audibly identify the call recipient to the calling party without any input from the call recipient and without using any special equipment such as a display screen by the calling party. The audible confirmation system is especially useful when the call recipient does not have voice mail service and is not available to receive a call. For example, by utilizing the audible confirmation system, the calling party is able to confirm the identity of the call recipient prior to leaving a confidential message for the call recipient by utilizing the calling party's voice mail delivery system for automatically delivering the confidential message to the call recipient.
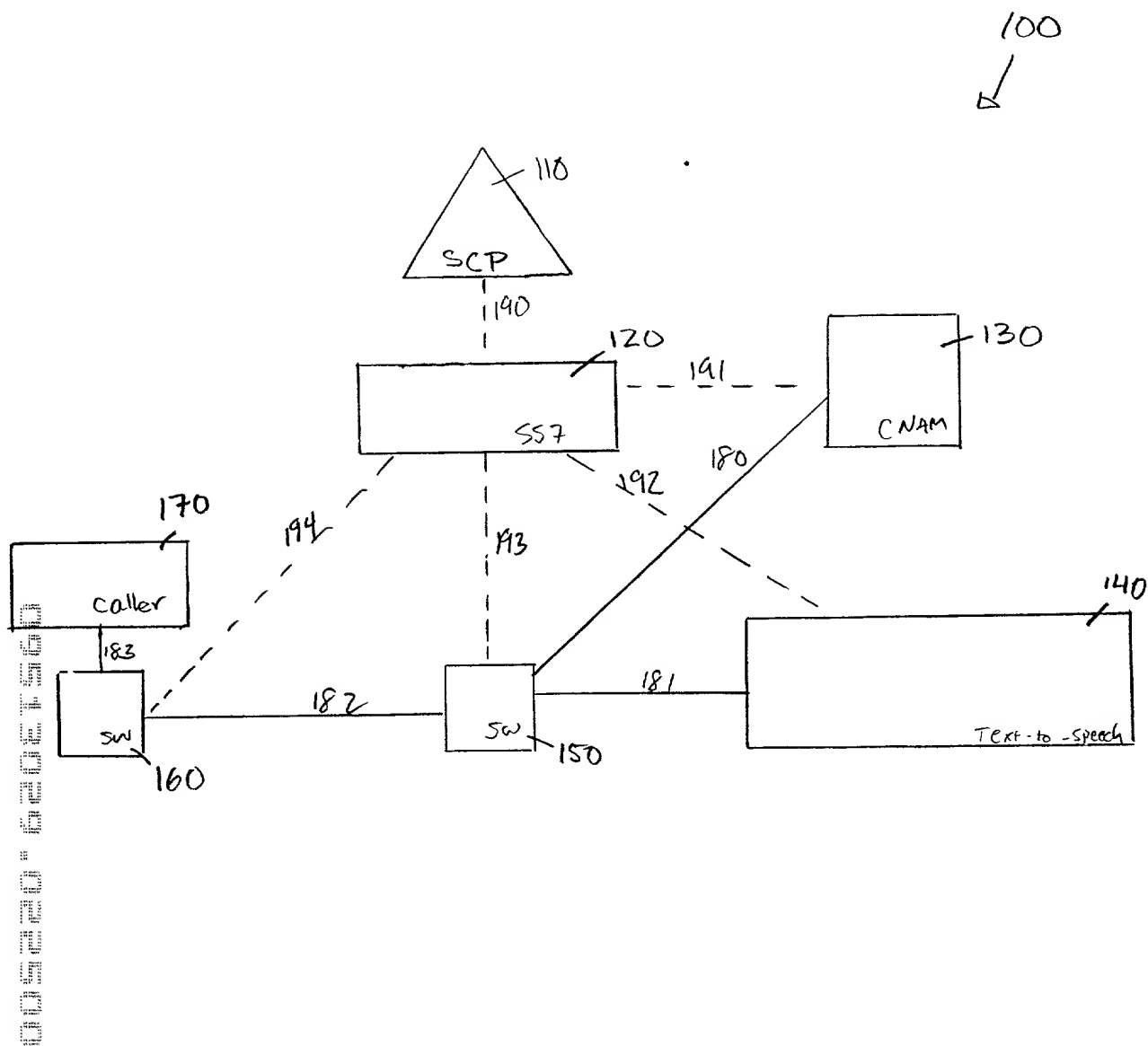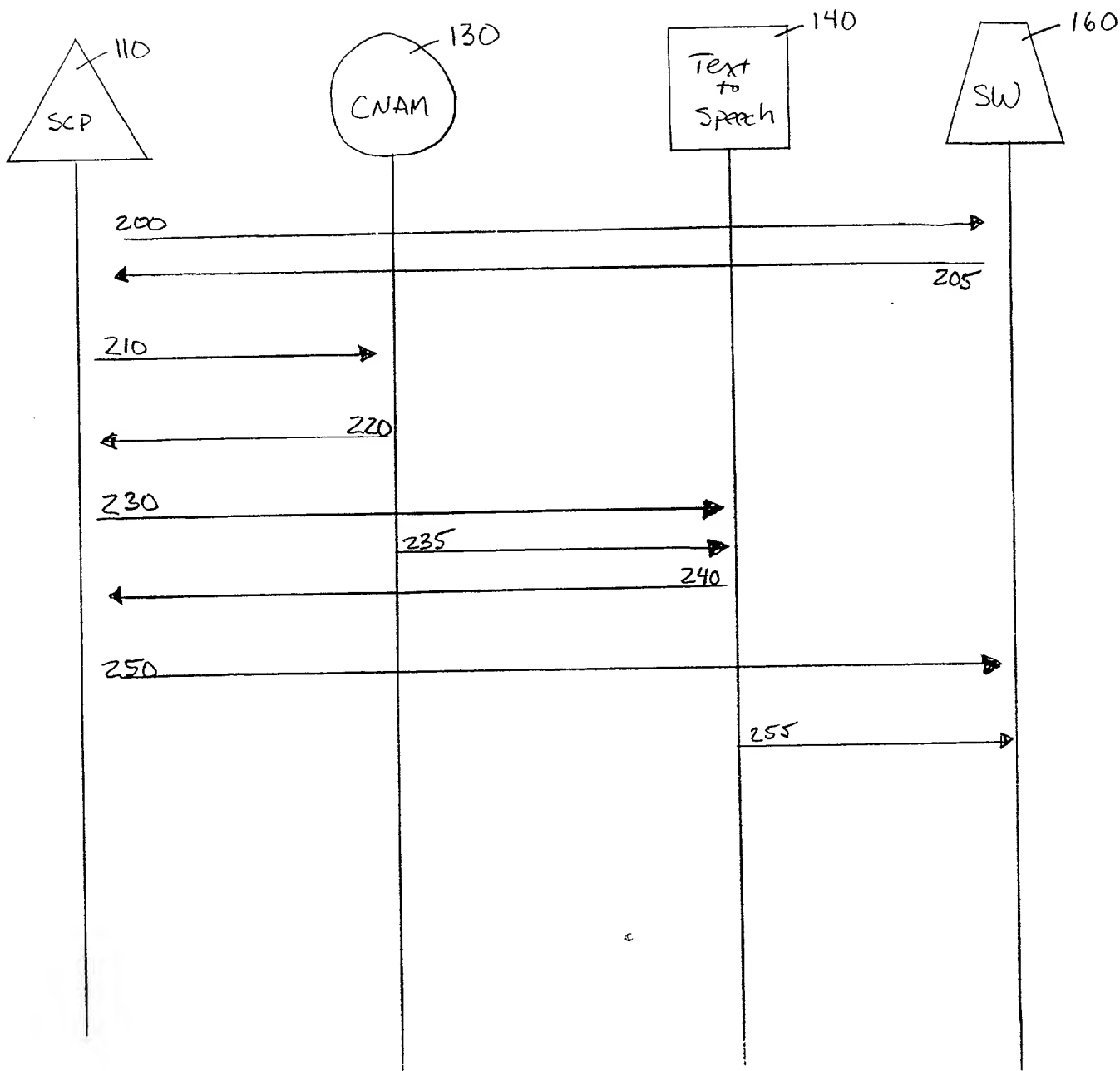
100

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SCP

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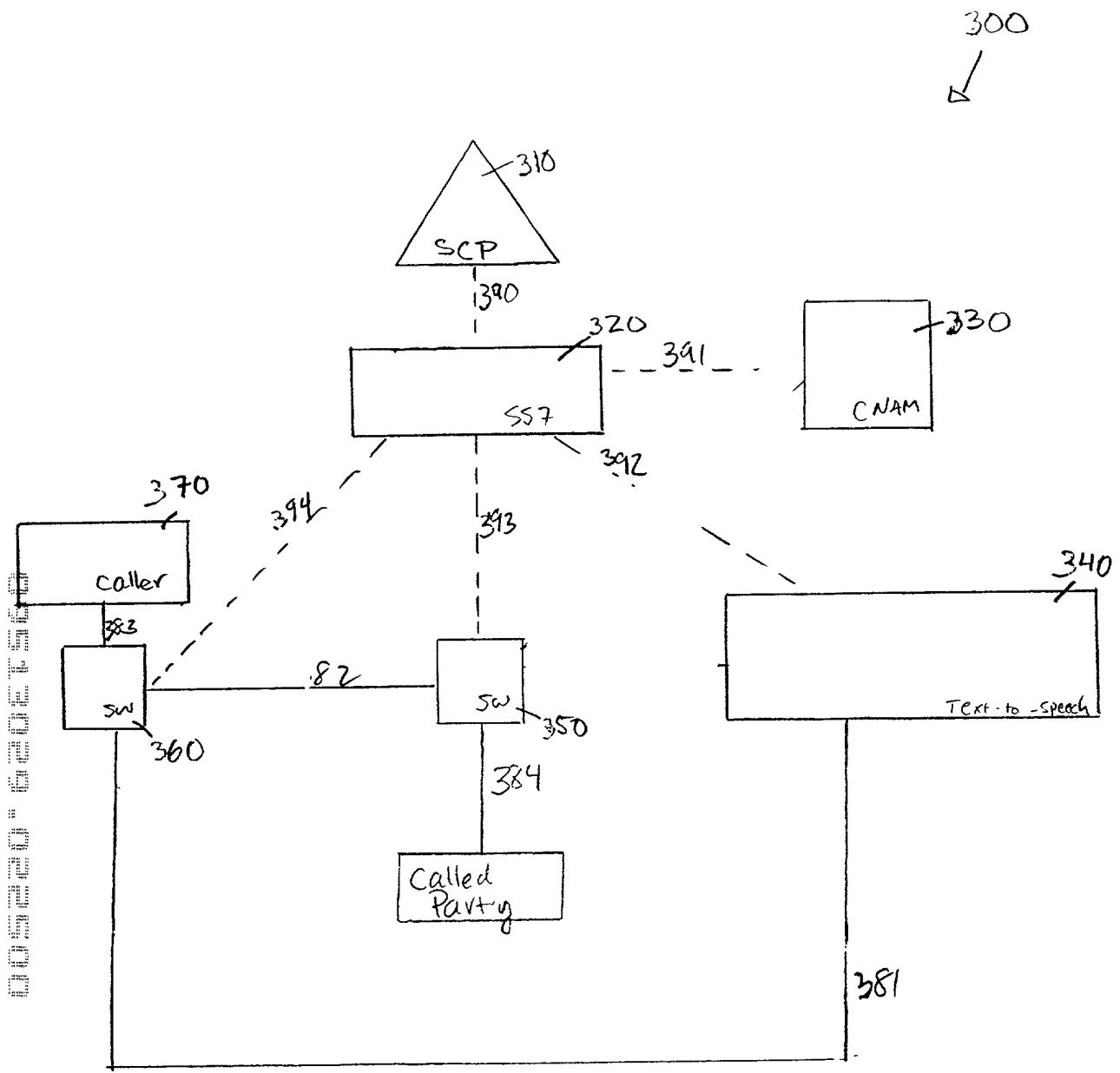
120

191

130

SS7

CNAM

180

192

170

194

193

Caller

183

140

182

181

sw

sw

Text-to-Speech

160

150

Figure 1

SCP /110

CNAM 130

Text to Speech /140

SW /160

200

205

210

220

230

235

240

250

255

Figure 2

300

310

SCP

390

320

391

330

CNAM

392

370

394

SS7

393

340

Caller

383

82

SW

SW

350

Text-to-speech

360

384

Called
Party

381

Figure 3

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name. I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: **AUDIBLE CONFIRMATION USING TEXT TO SPEECH CONVERSION**. The specification of which is attached hereto. I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claim	
			Yes	No
Number	Country	Day/Month/Year Filed		

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status: Patented, Pending, Abandoned

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

60/121,721	February 26, 1999
Application Serial No.	Filing Date

I hereby appoint the following as my attorneys with full power of substitution to prosecute this application and transact all business in the Patent and Trademark Office in connection therewith:

Thomas B. Haverstock	32,571	Jonathan O. Owens	37,902

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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